

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP

OMB APPROVAL	
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Check this box if no longer subject to Section 16. Form 4 or Form 5 obligations may continue. See Instruction 1(b).

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934 or Section 30(h) of the Investment Company Act of 1940

1. Name and Address of Reporting Person* <u>BAKER BROS. ADVISORS LP</u> (Last) (First) (Middle) 860 WASHINGTON STREET 3RD FLOOR (Street) NEW YORK NY 10014 (City) (State) (Zip)	2. Issuer Name and Ticker or Trading Symbol <u>RHYTHM PHARMACEUTICALS, INC. [</u> <u>RYTM]</u>	5. Relationship of Reporting Person(s) to Issuer (Check all applicable) Director 10% Owner Officer (give title below) <input checked="" type="checkbox"/> Other (specify below) Former 10% owner
	3. Date of Earliest Transaction (Month/Day/Year) 10/05/2017	

Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned

1. Title of Security (Instr. 3)	2. Transaction Date (Month/Day/Year)	2A. Deemed Execution Date, if any (Month/Day/Year)	3. Transaction Code (Instr. 8)		4. Securities Acquired (A) or Disposed Of (D) (Instr. 3, 4 and 5)			5. Amount of Securities Beneficially Owned Following Reported Transaction(s) (Instr. 3 and 4)	6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)	7. Nature of Indirect Beneficial Ownership (Instr. 4)
			Code	V	Amount	(A) or (D)	Price			
Common Stock	10/05/2017		C		82,969 ⁽¹⁾	A	\$0 ⁽¹⁾	82,969	I	See footnotes ⁽²⁾⁽⁷⁾⁽⁸⁾
Common Stock	10/05/2017		C		1,081,051 ⁽¹⁾	A	\$0 ⁽¹⁾	1,081,051	I	See footnotes ⁽³⁾⁽⁷⁾⁽⁸⁾
Common Stock	10/05/2017		P		87,809 ⁽⁴⁾	A	\$17	170,778	I	See footnotes ⁽²⁾⁽⁷⁾⁽⁸⁾
Common Stock	10/05/2017		P		797,191 ⁽⁴⁾	A	\$17	1,878,242	I	See footnotes ⁽³⁾⁽⁷⁾⁽⁸⁾

Table II - Derivative Securities Acquired, Disposed of, or Beneficially Owned (e.g., puts, calls, warrants, options, convertible securities)

1. Title of Derivative Security (Instr. 3)	2. Conversion or Exercise Price of Derivative Security	3. Transaction Date (Month/Day/Year)	3A. Deemed Execution Date, if any (Month/Day/Year)	4. Transaction Code (Instr. 8)		5. Number of Derivative Securities Acquired (A) or Disposed of (D) (Instr. 3, 4 and 5)		6. Date Exercisable and Expiration Date (Month/Day/Year)		7. Title and Amount of Securities Underlying Derivative Security (Instr. 3 and 4)		8. Price of Derivative Security (Instr. 5)	9. Number of derivative Securities Beneficially Owned Following Reported Transaction(s) (Instr. 4)	10. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)	11. Nature of Indirect Beneficial Ownership (Instr. 4)
				Code	V	(A)	(D)	Date Exercisable	Expiration Date	Title	Amount or Number of Shares				
Series A Convertible Preferred	(5)	10/05/2017		C			760,829	(5)	(5)	Common Stock	82,969	(6)	0	I	See footnotes ⁽²⁾⁽⁷⁾⁽⁸⁾
Series A Convertible Preferred	(5)	10/05/2017		C			9,913,242	(5)	(5)	Common Stock	1,081,051	(6)	0	I	See footnotes ⁽³⁾⁽⁷⁾⁽⁸⁾

1. Name and Address of Reporting Person*
BAKER BROS. ADVISORS LP
 (Last) (First) (Middle)
 860 WASHINGTON STREET
 3RD FLOOR
 (Street)
 NEW YORK NY 10014
 (City) (State) (Zip)

1. Name and Address of Reporting Person*
Baker Bros. Advisors (GP) LLC
 (Last) (First) (Middle)
 860 WASHINGTON STREET
 3RD FLOOR
 (Street)
 NEW YORK NY 10014
 (City) (State) (Zip)

1. Name and Address of Reporting Person*

[BAKER FELIX](#)

(Last) (First) (Middle)

860 WASHINGTON STREET
3RD FLOOR

(Street)
NEW YORK NY 10014

(City) (State) (Zip)

1. Name and Address of Reporting Person*

[BAKER JULIAN](#)

(Last) (First) (Middle)

860 WASHINGTON STREET, 3RD FLOOR

(Street)
NEW YORK NY 10014

(City) (State) (Zip)

Explanation of Responses:

1. Represents shares of common stock of Rhythm Pharmaceuticals, Inc. (the "Issuer") received upon conversion of shares of the Issuer's Series A Convertible Preferred Stock ("Series A Preferred") which automatically convert into common stock of the Issuer on a 9.17 for 1 basis (the "Conversion Ratio") without consideration upon the closing of the initial public offering of the Issuer ("IPO").
2. After giving effect to the transactions reported herein, and as a result of their ownership interest in Baker Biotech Capital (GP), LLC, Julian C. Baker and Felix J. Baker may be deemed to have an indirect pecuniary interest in shares of the Issuer's common stock reported in column 5 of Table I directly held by 667, L.P. ("667"), a limited partnership of which the sole general partner is Baker Biotech Capital, L.P., a limited partnership of which the sole general partner is Baker Biotech Capital (GP), LLC, due to Baker Biotech Capital, L.P.'s right to receive an allocation of a portion of the profits from 667.
3. After giving effect to the transactions reported herein, and as a result of their ownership interest in Baker Brothers Life Sciences Capital (GP), LLC, Julian C. Baker and Felix J. Baker may be deemed to have an indirect pecuniary interest in shares of the Issuer's common stock reported in column 5 of Table I directly held by Baker Brothers Life Sciences, L.P. ("Life Sciences" and together with 667, the "Funds"), a limited partnership of which the sole general partner is Baker Brothers Life Sciences Capital, L.P., a limited partnership of which the sole general partner is Baker Brothers Life Sciences Capital (GP), LLC, due to Baker Brothers Life Sciences Capital, L.P.'s right to receive an allocation of a portion of the profits from Life Sciences.
4. On October 5, 2017, 667 and Life Sciences purchased 87,809 and 797,191 shares of common stock of the Issuer at a price of \$17.00 per share, respectively, pursuant to an IPO.
5. Effective upon the closing of the Issuer's IPO, the Series A Preferred shares of the Issuer were converted at the Conversion Ratio without consideration into the number of common shares of the Issuer shown in Column 7. The Series A Preferred shares did not have an expiration date and were convertible at any time, at the holder's election, into common shares of the Issuer.
6. Pursuant to Instruction 4(c)(iii), this response has been left blank.
7. Baker Bros. Advisors LP (the "Adviser") serves as the Investment Adviser to the Funds. In connection with the services provided by the Adviser, the Adviser receives an asset-based management fee that does not confer any pecuniary interest in the securities held by the Funds. Baker Bros. Advisors (GP) LLC (the "Adviser GP") is the Adviser's sole general partner. Julian C. Baker and Felix J. Baker are principals of the Adviser GP. The Adviser has complete and unlimited discretion and authority with respect to the investment and voting power of the securities held by the Funds.
8. The general partners of the Funds relinquished to the Adviser all discretion and authority with respect to the investment and voting power of the securities held by the Funds. Julian C. Baker, Felix J. Baker, the Adviser GP and the Adviser disclaim beneficial ownership of the securities held directly by the Funds except to the extent of their pecuniary interest therein, and this report shall not be deemed an admission that any of Julian C. Baker, Felix J. Baker, the Adviser GP or the Adviser is a beneficial owner of such securities for purposes of Section 16 or any other purpose.

Remarks:

[By: Baker Bros. Advisors LP,](#)
[Name: Scott L. Lessing, Title: 10/06/2017](#)
[President /s/ Scott L. Lessing](#)

[By: Baker Bros. Advisors \(GP\)](#)
[LLC, Name: Scott L. Lessing, 10/06/2017](#)
[Title: President /s/ Scott L.](#)
[Lessing](#)

[/s/ Felix J. Baker 10/06/2017](#)
[/s/ Julian C. Baker 10/06/2017](#)

** Signature of Reporting Person Date

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

* If the form is filed by more than one reporting person, see Instruction 4 (b)(v).

** Intentional misstatements or omissions of facts constitute Federal Criminal Violations See 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, see Instruction 6 for procedure.

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